

I claim:

1. Locking pliers comprising:

a stationary assembly having an elongated overall shape, wherein one end of said stationary assembly forms a stationary handle, and the other end of said stationary assembly

5 forms a stationary jaw;

a moveable assembly including an operating lever and a moveable jaw that is supported on said stationary jaw via a first pivot;

said operating lever having a front end that is supported on said stationary jaw via a second pivot, and a rear end that forms a moveable handle;

10 a spring biasing said moveable handle away from said stationary handle;

said moveable assembly further including a first link having a front end supported on said moveable jaw via a third pivot and a rear end supported on said operating lever via a forth pivot at an intermediate point along said operating lever whereby said moveable jaw is caused to close toward said stationary jaw from an open position to a closed position for clamping

15 an item between said jaws when said moveable handle is moved toward said stationary handle, said rear end of said first link having a rearwardly extending protrusion extending beyond said forth pivot, and a second link having a front end supported on said protrusion of said first link via a fifth pivot and a rear end supported on said stationary handle via a sixth pivot at a resting point that is adjustable along a length of said stationary handle, whereby said links provide a past-dead-center

20 locking toggle mechanism; and

stop means for preventing said toggle mechanism from going beyond a point of alignment past dead center upon movement of said moveable handle toward said stationary handle.

2. The locking pliers of claim 1, wherein said first pivot is a slidable pivot connection whereby said moveable jaw is permitted to close down on an object disposed between  
5 said jaws for providing self-adjustment of said jaws for different sized objects to be gripped between said jaws.

3. The locking pliers of claim 2, wherein said slidable pivot connection includes a spring biased pawl and ratchet mechanism with said pawl secured to said moveable jaw by said first pivot and moveable within a slot extending in said stationary jaw generally transversely to said  
10 jaws, said pawl having forwardly facing teeth for engaging a rack of teeth on a front edge of said slot for providing said ratchet, and a spring connected between said pawl and said stationary assembly for maintaining said pawl teeth normally disengaged from said rack teeth.

4. The locking pliers of claim 3, wherein said second pivot is a slidable pivot connection.

15 5. The locking pliers of claim 4, wherein said spring for biasing said moveable handle away from said stationary handle is comprised of a spring disposed between said stationary handle and the front end of said second link.

6. The locking pliers of claim 5, including a protrusion on the front end of said second link which is dimensioned for retaining an end of said spring at a position located in front of said fifth pivot in the open position and in rear of said fifth pivot in the closed position.

7. The locking pliers of claim 6, wherein said spring is a torsion spring.

5 8. The locking pliers of claim 4, wherein said sixth pivot is displaceable along said second link to two alternate positions for presetting said jaws for gripping larger or smaller objects.

9. The locking pliers of claim 4, wherein said stop means also prevents said toggle mechanism from going beyond a point of alignment past dead center upon movement of said  
10 moveable handle away from said stationary handle to the open position.

10. The locking pliers of claim 1, wherein said second pivot is a slidable pivot connection.

11. The locking pliers of claim 1, wherein said spring for biasing said moveable handle away from said stationary handle is comprised of a spring disposed between said stationary  
15 handle and the front end of said second link.

12. The locking pliers of claim 11, wherein said spring is a torsion spring.

13. The locking pliers of claim 1, wherein said sixth pivot is displaceable along said second link to two alternate positions for presetting said jaws for gripping larger or smaller objects.

14. The locking pliers of claim 1, wherein said stop means also prevents said  
5 toggle mechanism from going beyond a point of alignment past dead center upon movement of said moveable handle away from said stationary handle to the open position.

15. The locking pliers of claim 1, wherein said sixth pivot is adjustable along a length of said stationary handle by means of a slide received in said stationary handle and which is displaceable with a thumb screw threadably received in said stationary handle.

10 16. Self-adjusting locking pliers comprising:  
a stationary assembly having an elongated overall shape, wherein one end of said stationary assembly forms a stationary handle, and the other end of said stationary assembly forms a stationary jaw;  
a moveable assembly including an operating lever and a moveable jaw that  
15 is supported on said stationary jaw via a first pivot which is comprised of a slidable pivot connection whereby said moveable jaw is permitted to close down on an object disposed between said jaws for providing self-adjustment of said jaws for different sized objects to be gripped between said jaws;

said operating lever having a front end that is supported on said stationary jaw via a second pivot which is comprised of a slidable pivot connection, and a rear end of said operating lever that forms a moveable handle;

a spring biasing said moveable handle away from said stationary handle;

5                   said moveable assembly further including a first link having a front end supported on said moveable jaw via a third pivot and a rear end supported on said operating lever via a fourth pivot at an intermediate point along said operating lever whereby said moveable jaw is caused to close toward said stationary jaw from an open position to a closed position for clamping an item between said jaws when said movable handle is moved toward said stationary handle, said  
10 rear end of said first link having a rearwardly extending protrusion extending beyond said fourth pivot, and a second link having a front end supported on said protrusion of said first link via a fifth pivot and a rear end supported on said stationary handle via a sixth pivot at a resting point that is adjustable along a length of said stationary handle, whereby said links provide a past-dead-center locking toggle mechanism;

15                   a protrusion on the front end of said second link which is dimensioned for retaining an end of said spring at a position located in front of said fifth pivot in the open position and in rear of said fifth pivot in the closed position; and

stop means for preventing said toggle mechanism from going beyond a point of alignment past dead center upon movement of said moveable handle toward said stationary handle  
20 to the closed position, and for preventing said toggle mechanism from going beyond a point of alignment past dead center upon movement of said moveable handle away from said stationary handle to the open position.

17. The self-adjusting locking pliers of claim 16, wherein said sixth pivot is adjustable along a length of said stationary handle by means of a slide received in said stationary handle which is displaceable with a thumb screw threadably received in said stationary handle.

18. The self-adjusting locking pliers of claim 17, wherein said sixth pivot is  
5 displaceable along said second link to two alternate positions for presetting said jaws for gripping larger or smaller objects.

19. The self-adjusting locking pliers of claim 18, wherein said spring is a torsion spring.

20. The self-adjusting locking pliers of claim 19, wherein said slidable first pivot  
10 connection includes a spring biased pawl and ratchet mechanism with said pawl secured to said moveable jaw by said first pivot and moveable within a slot extending in said stationary jaw generally transversely to said jaws, said pawl having forwardly facing teeth for engaging a rack of teeth on a front edge of said slot for providing said ratchet, and a spring connected between said pawl and said stationary assembly for maintaining said pawl teeth normally disengaged from said rack  
15 teeth.